NATIONAL PRODUCT STEWARDSHIP INVESTMENT FUND
(NPSIF)

PRODUCT STEWARDSHIP OIL CONTAINERS

Project Summary

ANZPAC PLASTICS PACT

SUPPORTED BY APCO

VERSION 1: MARCH 2023

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ACKNOWLEDGEMENTS

We acknowledge and thank the numerous contributors who participated in this project. The completion of this work was only possible thanks to your valuable expert contributions.

DISCLAIMER

INTRODUCTION

In driving action towards the 2025 National Packaging Targets, and in response to the Department of Climate Change, Energy, the Environment and Water's (DCCEEW) Minister's Priority Listing, the ANZPAC Plastics Pact and the Australian Packaging Covenant Organisation (APCO) completed work to design a national product stewardship scheme for the recovery of motor oil containers.

Project activities included material flow, business case development, costs benefit analyses, models for governance, funding, solutions to free rider issues and scheme design.

Stakeholder engagement conducted via one-on-one consultations, surveys, presentations and workshops identified that the optimal approach to setting up a container stewardship scheme would be linked to Commonwealth Government regulation, with the preferred model to be developed.

Following advice from the Department it is understood that further investigation into the feasibility of this approach is required.

The implementation of a stewardship scheme is critical to improving the circularity of oil containers, ensuring that existing collection and processing is financially supported, and to guarantee a nationally accessible solution to mitigate the environmental impacts of this contaminated packaging.

Building on current collections and processing infrastructure, the new scheme could leverage existing public and private drop off points in place under the Product Stewardship for Oil (PSO)[1] scheme and have the oil containers recycled into medium grade plastic flakes and recovered metal.

Funding for this project was granted by the Australian Government's DCCEEW National Product Stewardship Investment Fund (NPSIF).

A Vision for Circularity of Oil Containers in Australia

For more information visit ***ANZPAC***

1 Lubricant suppliers currently participate in an existing product stewardship scheme (PSO) for the recovery and recycling of used oil. Details of the PSO scheme are laid out in: Product Stewardship Centre for Excellence, Mandated product stewardship: The case for used oil, 2022. *https://stewardshipexcellence.com.au/wp-content/uploads/2023/01/Case-Study-Used-Oil.pdf*

BACKGROUND

The problem

An estimated 41 million containers of in-scope[2] packaged lubricant oil is sold in a typical year, with assoicated containers weighing 7,150 tonnes.

The vast majority of lubricants sold in Australia are traded in bulk to industrial and mining companies, primary producers, transport companies and the automotive industry.

About 20 to 25% of lubricant sales or 101 million litres are made to retail consumers and smaller commercial customers each year, with approximately 75% sold to commercial customers.

Around 75% of the volume of packaged lubricant sales are petrol and diesel engine oils, with transmission oil, gear oil and other niche oils comprising the remainder.

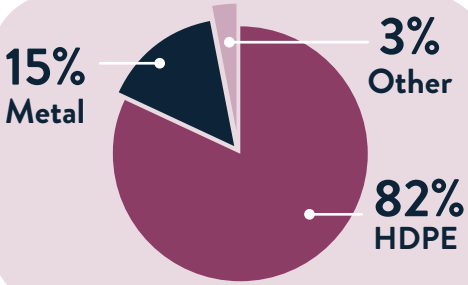
Containers are often made from plastic or metal-based and capable of being full recycled back into useful products.

Due to concerns about oil contamination in landfills, councils discourage households from discarding used lubricant containers in kerbside garbage bins or in hard waste collections. They are also unsuitable for recovery via kerbside recycling services, due to potential contamination impacts in downstream Materials Recovery Facilities (MRFs). Council contracts with MRF operators may disallow oil containers from being presented to the operator, with the containers being removed and treated as a contaminated waste stream.

Councils instead encourage residents to take oil containers which may be full or partially full of used oil to council waste transfer stations or to waste oil collection centres (operating as part of the Product Stewardship for Oil Scheme). The majority of these centres will drain any oil from the containers for recovery, and dispose the empty container in landfill. A minority (approximately 30 centres) in Melbourne will designate the empty container for recycling into non-food grade HDPE.

Commercial and retail volumes are packaged in small containers, ranging from

1 LITRE to 20 LITRES in size



About **67%** **of the packaged lubricant sales are in urban areas,** with the remaining 33% sold in regional and rural Australia.

2 Containers included in scope are containers made of HDPE or metal and containing engine oil, gear oil, transmission fluid and hydraulic fluid, up to and including 20L in volume.

Why action is needed

A PREVIOUS INDUSTRY LED PROGRAM

A voluntary product stewardship scheme for used oil containers, administered by the Australian Institute of Petroleum (AIP), operated in Australia for over ten years from 2004.

Participating oil lubricant suppliers worked with recycling company Visy Industries Packaging (VIP), a division of the PACT Group to collect and recycle up to 500 tonnes of used oil containers from over 430 collection sites across the country.

This previous scheme ceased in 2016 due to significant free-rider issues, with lubricant oil suppliers representing at least half the market for packaged lubricants not financially contributing to the scheme. This situation can be linked in part to increasing oil product imports to Australia alongside declining domestic oil refining capacity.

The current pathways available to recycle the containers

ARE NOT WORKABLE
for recovering small (20 litre or less) oil containers.

When used containers are disposed of incorrectly or enter the kerbside system, they can **cause harm to**

HUMAN HEALTH and the ENVIRONMENT,
contaminating existing waste streams

Current oil container recovery rates are estimated at

LESS THAN 8%
of total volumes, and risk declining.

This is out of step with the 2025 National Packaging Targets and the National Waste Policy Action Plan goal to recover 80% of all streams by 2030.

There are a number of barriers driving the need for a consistent national approach that accounts for the important role of the consumer in bringing used oil containers to suitable locations. These include:

Convenient access to collection points

Guidance on participation requirements

Measures to drive awareness of recycling options.

Services and systems for recycling oil containers are challenging to financially sustain.

A SECTOR WIDE PRODUCT STEWARDSHIP SYSTEM is required to support greater recovery that covers operational costs.

The need to **URGENTLY ADDRESS** the management of used oil containers has been flagged by the Commonwealth Government, with the product placed on the **Commonwealth Minister's Product Stewardship Priority List.**

KEY CHALLENGES

The barriers outlined in the recovery of used containers can be viewed as a deficiency in market capability to recover used oil containers without supporting stewardship arrangements for small volume motor oil packaging.

Product stewardship is seen as a key mechanism in the National Waste Policy Action Plan to achieve better resource recovery rates for products that are otherwise challenging to recover through more broad based measures.[3]

In working towards a preferred model for product stewardship for oil containers in Australia, it was determined that there are five challenging areas that an optimal scheme should respond to:

INDUSTRY PARTICIPATION
Full participation of suppliers, no free riders

CONSUMER PARTICIPATION
Consumer access and awareness to encourage behaviour change

COLLECTION & TRANSPORT
Well designed network of collection and transport infrastructure

FINANCIAL SUSTAINABILITY
Ongoing scheme funding, cost effective operations

RECYCLING
Feasible processes and assured markets for recovered materials

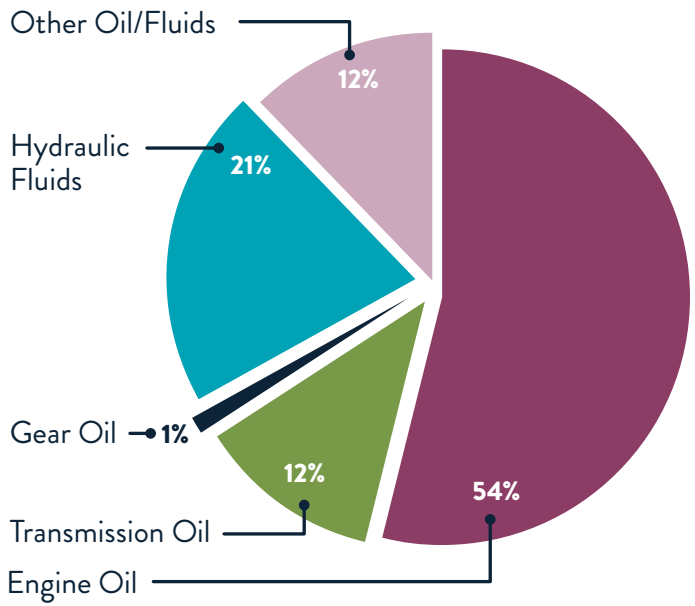
These challenges were applied as criteria to **test design options for a stewardship scheme**, alongside criteria geared towards effective scheme governance and focused delivery.

3 Australian Government, state and territory governments, and Australian Local Government Association, National Waste Policy Action Plan, 2019, p. 12.

MATERIAL FLOW

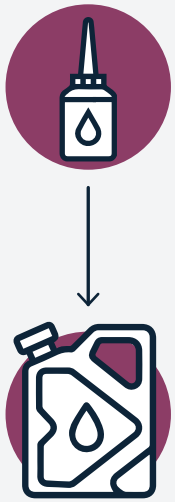
Analysis of the material flow was essential in understanding the current landscape for oil containers, and to help identify the most effective and efficient product stewardship solutions.

TONNES



Percentage split of oil containers by mass and market segment, 2021

PACKAGING SIZE



Volume	Volume %
Up to 1 litre	29%
Up to 4 litres	7%
Up to 5 litres	32%
Up to 6 litres	5%
Up to 7 litres	3%
Up to 10 litres	11%
Up to 20 litres	13%
Total	**100%**

Consumption of oil containers by packaging size, 2021

CONSUMER USAGE

Metro **67%**

Non-metro **33%**

Regional breakdown of in-scope oil containers

MATERIAL TYPE

HDPE **82%**

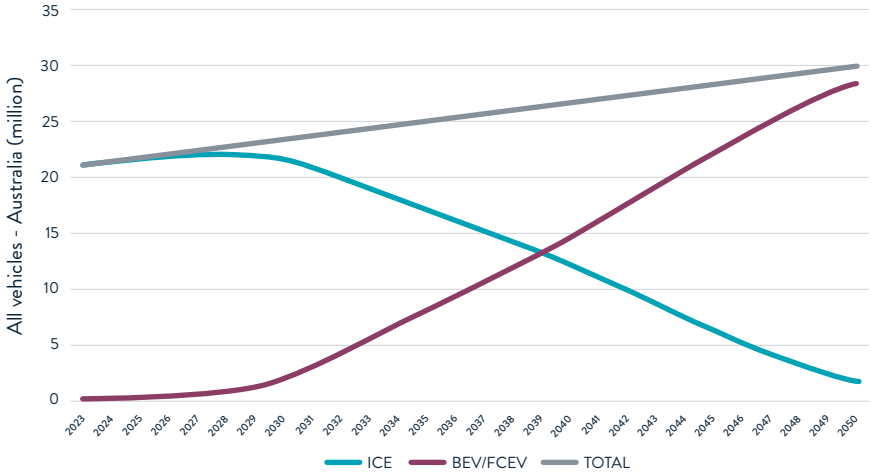
Metal **15%**

Other **3%**

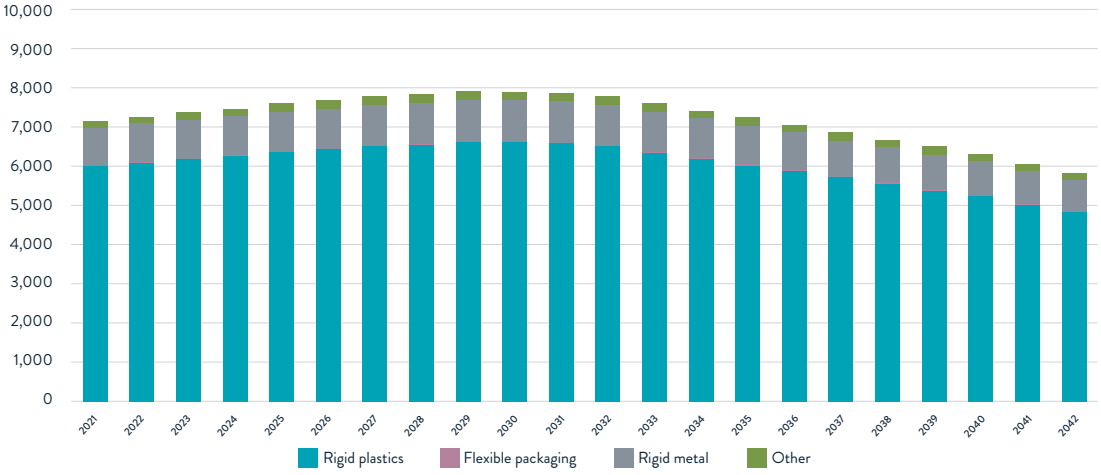
Packaging material type, 2021

For more detailed data visit ***ANZPAC***

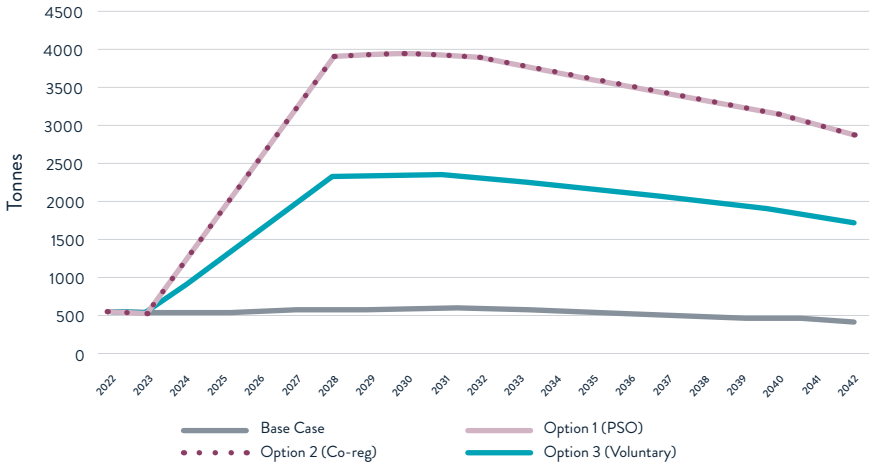
PROJECTIONS



Projected motor vehicles numbers in Australia, ICE and EV , 2023-2050



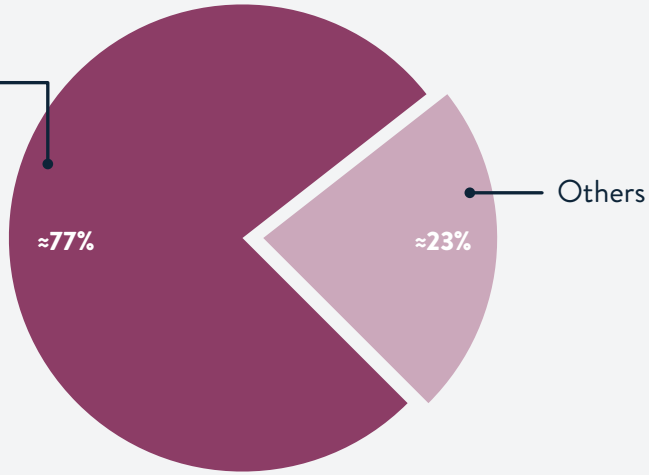
Projected mass of packaged oil containers by packaging material, 2021-2042 (tonnes)



Projected recovery of used oil containers under Base case and options, 2021-2042 (tonnes)

BRANDS

- Ampol
- BP
- Fuchs
- Gulf Western
- Penrite
- Valvoline
- Viva Energy



Approximately 77% of the market consist of 7 major lubricant suppliers with 23% of the market represented by over 50 brands.

STAKEHOLDER ENGAGEMENT

Stakeholders in the supply, use, disposal and recovery of oil containers were engaged with regularly throughout the project.

This engagement informed the development of the:

- *Situational analysis*
- *Scheme design options*
- *Cost-benefit analysis*
- *Final scheme design.*

In order to ensure information used in project activities were of a high standard and had a high degree of relevance the following activities were undertaken:

- *One on one meetings*
- *Industry meetings*
- *Site visits*
- *Structured interviews*
- *Industry questionnaires and surveys*
- *Webinars*
- *APCO and ANZPAC newsletters.*

Stakeholders consulted over the course of the project included:

- *Brand owners, oil packaging manufacturers and processors*
- *Businesses and organisations representing waste management, transfer stations and community recycling centres*
- *Retailers and consumers of oil containers*
- *Other product stewardship scheme administrators*
- *Commonwealth, state and local governments.*

Industry meeting Aug-22 at Pact Group container processing facility (Attendees: Brand Owners, Waste Management, Packaging Manufacturer/Processor and an Industry Association)

SCHEME DESIGN

An optimal stewardship scheme for oil containers

A proposed scope of activities needed to ensure a sustainable and successful path to recover oil containers was developed in consultation with government, industry, and key stakeholders. This scope of activities includes the following, with potential for expansion.

- **The collection and recycling of all HDPE motor oil containers up to 20 litres in capacity.**
- **On pack labelling for correct disposal and public education.**
- **The potential for packaging re-use models.**
- **End markets and use of recycled content.**

The most feasible options (shortlisted) for a national oil container stewardship scheme were reviewed, with distinctive features of each option identified:

Option	Details
Regulatory scheme linked to the Product Stewardship for Oil scheme	Regulations require businesses involved in the supply chain to take action in relation to products. The Product Stewardship for Oil (PSO) Scheme is currently the only regulatory scheme in place in Australia.
Co-regulatory scheme	This option melds industry led action and administration, with regulatory backing, to achieve stewardship outcomes. These regulations may make some supply chain businesses liable to meet scheme objectives.
Voluntary accredited scheme	A voluntary scheme is led by industry. Accreditation may be sought to show that the scheme is verified; will lead to waste reduction and recycling; and supports the shift to a circular economy for the target material.

Each option was specified in its design and function to a degree that allowed for practical comparison, with a focus on their having features and characteristics that would best deliver on an agreed set of objectives and scope of functions, taking into consideration government product stewardship policy.

The options broadly mirror the product stewardship scheme categories set out in the Commonwealth Government *Recycling and Waste Reduction Act 2020*, consistent with taking an open view towards potential solutions ahead of undertaking a detailed and objective analysis.

REGULATED SCHEME: The preferred oil container stewardship option

A qualitative comparison of the three alternative models of a product stewardship scheme for used oil containers shows that each scheme design option can perform against the key challenges identified in recovering and reprocessing oil containers.

However, trade-offs are likely between:

A flexible and low-cost model which can be delivered through a well-designed voluntary scheme; and protection against free riders and strong recycling outcomes, which are more likely to be delivered by a co-regulatory or a regulatory scheme.

In following this qualitative comparison with a cost benefit analysis, greater distinctions become apparent. Using the calculation of Net Present Value as a key indicator to compare the net costs and benefits of each option, a regulatory scheme linked to and able to utilise key elements of the existing PSO, or a co-regulated model was determined as the preferred option from a financial and stakeholder perspective.

Lubricant suppliers have communicated a continued preference towards a regulated scheme, due to:

THE FREE RIDER CHALLENGES ASSOCIATED WITH THE PREVIOUS INDUSTRY RUN PROGRAM,
where some brand owners were left paying for a program, and new entrants were not financially contributing.

The effectiveness of the PSO scheme or other regulated / coregulated approaches in
CREATING MARKET EQUITY AND DELIVERING GREATER SCHEME OUTCOMES.
Brands believe this is the logical framework to support the recovery of containers program.

CHANGING MARKET DYNAMICS
e.g. an increase in brands entering the Australian market, and the reluctance to support additional costs for the recovery of engine oil given its decline as electric vehicle uptake increases.

INTEGRATION WITH THE PRODUCT STEWARDSHIP FOR OIL (PSO)

Further analysis and discussions with the Commonwealth are required to understand the administrative and legislative pathways to implement a scheme linked to the PSO, the findings need to be tempered by a discussion of how readily a preferred scheme may be implemented.

Whilst evidence suggests that a regulatory scheme linked to the existing product stewardship scheme for oil (PSO) may be beneficial, there are significant integration issues that would need to be considered in extending the relevant legislation and administrative arrangements to cover oil containers.

EXISTING LEGISLATIVE PROVISIONS COVERING THE PSO WOULD NEED TO BE UPDATED

to include used oil in addition to the liquid remit of the scheme currently,

Coordination across the Commonwealth

DCCEEW, THE AUSTRALIAN TAX OFFICE AND AUSTRALIAN BORDER FORCE

would be needed to ensure implementation, despite their limited resources potentially being committed to other core responsibilities

A LEAD AGENCY WOULD NEED TO ASSUME ONGOING ADMINISTRATIVE RESPONSIBILITY

for oil container recovery outcomes and related industry compliance (despite the relatively modest volumes of used oil containers), which would not be necessary under a coregulatory model.

These factors will have an impact on scheme viability and implementation timeframes. APCO, the lubricants industry and supply chain, and the Commonwealth Government are looking to understand these issues in further detail to ensure an optimal scheme design and implementation path can be determined and enacted.

In the event that a PSO-linked scheme proves unworkable, other regulatory or co-regulatory solutions e.g utilising the RAWR Act, will be the preferred option to ensure stewardship of used oil containers.

Considerable complexity in implementation may be avoided in developing a scheme that does not seek to leverage the various apparatus used by the PSO.

Regulatory options (including a coregulated approach) provide the best outcomes for society while achieving high recovery rates for oil containers in line with the National Waste Policy Action Plan. Moreover, in opting for a scheme with strong regulation across liable parts of the supply chain, the risk of failure due to too many free riders, as was experienced with the previous voluntary AIP program, is averted.

Optimising collection

Consumer access to drop-off points for used oil containers and efficient and effective collection and transport arrangements are critical to the success of a scheme.

Existing container collection/processing services (operated by Pact Group) and the PSO scheme offer a pragmatic and cost effective network of collection points and infrastructure that could be leveraged for a used oil container scheme.

However, current container collections and recycling are at high risk of diminishing without a stewardship arrangement to financially support their recovery and vision for circularity.

Reverse logistics models and applications of existing collection programs (e.g. drumMUSTER, Paintback) – were found to be less workable and/or more expensive to adopt than using the PSO network and collection system.

For the purposes of achieving efficiency, collection and transport systems for a used oil container scheme should align as closely as possible with systems in use by the PSO scheme i.e. transfer stations, community recycling centres and the existing Super Cheap Auto oil recycling service. Elements of collection and transport used in the previous oil container scheme may also be of use, to ensure that container drop off points are well located and widely accessible.

In leveraging the PSO collection arrangements, the scheme would be able to make use of conveniently placed public and private commercial collection sites which would be accessible to households and commercial consumers alike.

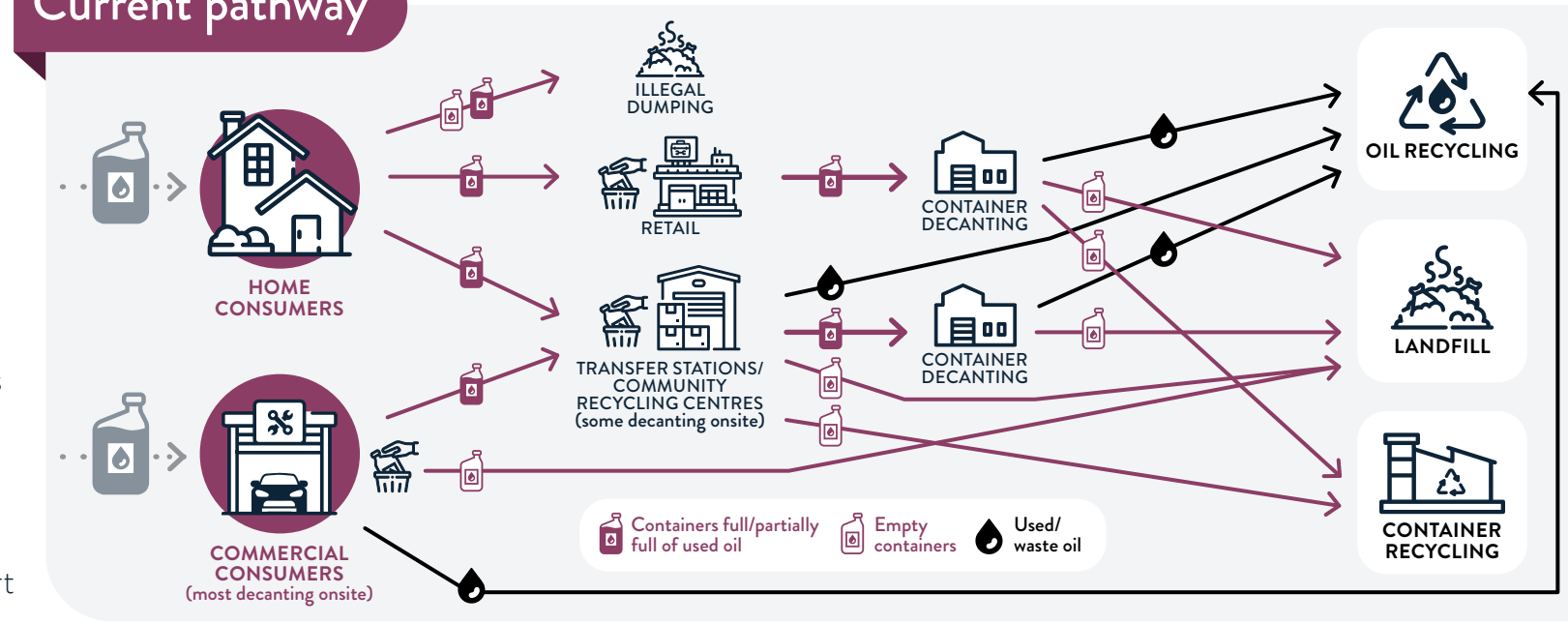
Distance, time, and the hazardous nature of the containers are significant factors towards the transport costs of the scheme. These costs need to be recuperated through fees charged to liable parties.

80% RECOVERY RATE

Use of the full network of public and private collection sites in use for the PSO scheme offers the potential for achieving a very high rate of container recovery.

Restricting collection sites to metropolitan areas and nearby regional cities and towns provides a means to limit transport costs. But this has to be weighed against the diminished access to collection points by those that live and work in outer regional and remote areas, and resulting impacts on the scheme's success rate.

Current pathway



End markets for recovered containers

Prior to any set up of a new product stewardship scheme for oil containers, the industry needs confidence that plastic and metal oil containers received via the scheme can be processed and remanufacturing into useful products.

Moreover, the viability of recycled products and end markets needs to be assessed to understand the net costs of the scheme, given the recovery costs and revenues from the sale of recycled materials that may be associated with various technology, product and end market configurations that can influence the economics and effectiveness of proposed scheme models.

Mechanical recycling of plastic containers to produce medium value HDPE flake, and recycling of metal containers via conventional scrap metal recycling are appealing and viable options, based on their technical, environmental and end-market sales merits.

Based on engagement with stakeholders, these recovery pathways are low risk, desirable options for recovering used plastic and metal oil containers.

Current plastic oil container processing is recycling used containers into commercial and industrial equipment e.g. wheelie bins, pallets and cable wheels. This process will need to be supported by investment in improved washing and pelletising facilities to increase the end market value and improve the circularity of oil containers.

The cost-benefit profile of recycling metal containers surpasses that of recycling plastic containers, on a per unit basis. Further discussions are required with manufacturers and importers, to better understand the feasibility of shifting their oil products from plastic to metal packaging solutions.

SCHEME IMPLEMENTATION

Work will continue with the industry and the Commonwealth Government to understand and collectively commit to a preferred pathway to deliver a stronger stewardship model for used oil containers.

Action is needed to mitigate the impacts of oil container packaging at its end of life over the immediate period leading to an industry-wide regulatory or co-regulatory scheme. To this end, an interim, phased, industry led program was recommended for potential brand owner liable parties to consider.

This was to ensure used container collection and recovery services continued over the transition to a regulatory or co-regulatory scheme. It will avoid the need for additional start up costs and efforts to re-engage existing users of the collection network.

Recruitment into the voluntary transition phase remains open, however based on initial feedback received from the major Brands it seems unlikely that a critical mass of brand owner liable parties will commit to supporting a voluntarily scheme, meaning a non-regulatory approach may prove to be unfeasible.

Buy in from industry funders of a scheme rests upon industry confidence that the Commonwealth Government is legitimately committed to working towards a regulatory or co-regulatory scheme in the near term, to avoid a repeat of the previous voluntary scheme that industry was not able to maintain from 2016 due to a combination of costs and free rider issues. That is, a voluntary scheme must be near term only, i.e. as an interim solution ahead of a national regulatory or co-regulatory scheme arrangement.

APCO will continue to facilitate and drive sector action in the space, seeking to gain buy in for a new program, and understanding further the possible regulatory pathways for an oil container scheme.

Engagement with industry and consumers will continue to ensure they are across developments and able to provide input.

GLOSSARY

TERMS AND ACRONYMS USED IN THIS DOCUMENT	
Organisation	**Overview**
ANZPAC Plastic Pact	Australia, New Zealand and Pacific Island Plastic Pact A regional platform for committed and ambitious governments and organisations spearheading the transition towards a circular economy for plastic packaging.
APCO	Australian Packaging Covenant Organisation A non-profit organisation leading the development of a circular economy for packaging in Australia. APCO works with governments, businesses and other organisations from across Australia's packaging value chain to develop the insights, resources and programs that are needed to build a sustainable national packaging ecosystem.
Australian Packaging Covenant	A national regulatory framework under the National Environment Protection (Used Packaging Materials) Measure 2011 (NEPM) that sets out how governments and businesses across Australia share the responsibility for managing the environmental impacts of packaging. APCO is in charge of managing and administering the Covenant.
Cost Benefit Analysis (CBA)	Cost Benefit Analysis (CBA) is a method of evaluation that attempts to estimate and compare the total benefits and costs of a particular policy proposal.
HDPE	High Density Polyethylene A plastic polymer commonly used in a range of packaging applications, including for oil containers. While HDPE is the predominant material used in oil containers, metal and other materials may alternatively be used.
MRF	Materials Recovery Facility Integrated equipment and processes contained within a single premises, used for the separation, de-contamination, processing and storage of materials recovered from discarded waste streams designated for recovery.

TERMS AND ACRONYMS USED IN THIS DOCUMENT

Organisation	Overview
National Waste Policy Action Plan	The National Waste Policy provides a national framework for waste and resource recovery in Australia. It highlights the importance of working together and outlines the roles and responsibilities for businesses, governments, communities and individuals. The policy outlines the five key principles for waste management that will enable Australia to transition to a circular economy. These include: • Avoid waste • Improve resource recovery • Increase use of recycled material and build demand and markets for recycled products • Better manage material flows to benefit human health, the environment and the economy • Improve information to support innovation, guide investment and enable informed consumer decisions. The National Waste Policy Action Plan 2019 included targets and actions to implement the National Waste Policy. The plan complements and supports the implementation of better waste management and circular economy plans by state and territory governments, local government, business and industry.
Oil	Petroleum based and synthetic liquids that are variously used as lubricants (e.g. for engines, gear sets, pumps or bearings), greases, hydraulic fluids, brake fluids, transmission oils, transformer and heat transfer oils, and similar purposes.
Product stewardship	Product stewardship is an approach to managing and using products and materials that acknowledges that those involved in designing, manufacturing, and selling products have a responsibility to ensure those products or materials are managed in a way that reduces their environmental and human health impacts, throughout the life-cycle and across the supply chain. It aims to drive environmentally beneficial outcomes through good design and clean manufacturing, including the use of components and materials that are easier to recover, reuse and recycle.

TERMS AND ACRONYMS USED IN THIS DOCUMENT	
Organisation	**Overview**
Product stewardship scheme	Product stewardship schemes apply product stewardship principles to support the environmentally sound management of products and materials over their life, including at the end of their useful life. Examples of good product stewardship are when: • People recycle products, and their packaging • Companies design their products for easier recycling • Companies use more recycled materials and less resources to manufacture their products • Companies limit the hazardous materials their products contain. Product stewardship arrangements may be voluntary, mandatory or shared with industry.
Product Stewardship for Oil (PSO)	The Product Stewardship for Oil Scheme (PSO) was introduced by the Australian Government in 2001, to provide industry with incentives for the environmentally sustainable management and re-refining of used and recycled oil. The scheme is based on a levy-benefit system, where the PSO imposes a duty of 8.5 cents per litre or kilogram on oil based lubricants, which funds benefits paid to used oil recyclers through the ATO.

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Supporting delivery of the ANZPAC Plastics Pact's Oil Containers Product Stewardship Program.

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GET IN TOUCH

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FURTHER INFORMATION

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